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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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PRIOR APPLICATION: Jean-Claude BEAUVILLAIN, et al.

SERIAL NO.: 09/831,907

GAU: 1636

FILED: September 18, 2001

EXAMINER: SULLIVAN, Daniel M.

FOR: MAMMALIAN UROTENSINS II AND APPLICATIONS THEREOF

#17

LETTER SUBMITTING DRAWING SHEET(S)

COMMISSIONER FOR PATENTS
Alexandria, VA 22313

SIR:

Responsive to the below indicated communication, the following drawing sheets are submitted herewith:

☒ 8 Replacement Drawing Sheets ☐ New Drawing Sheets

☒ Official Action dated March 21, 2003

☐ Notice of Allowance/Issue Fee dated

☐ Other dated

The changes and/or modifications made include the following:

All drawings (8 sheets) are translated from French to English.

Respectfully submitted,



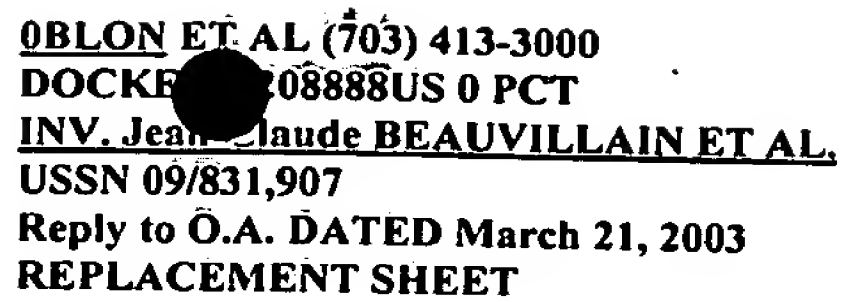
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Human	- M Y K L A S G C L L F I G A G L N P L L S L P L I V D T S R E I S Q L S A P H E D A R L T P E E L E R	49
Frog	- M S K L L F F C C L L A G S F C T H L S F R S L P I T D T S R E I S Q L S A P H E D A R L T P E E L E R	49
Carp α	M M C N L L L S F S V L L L L S C S M L L A H P V V T D T S R E I S Q L S A P H E D A R L T P E E L E R	49
Carp γ	M M C N L L L S C S V L L L L S C S M L L A H P V V T D T S R E I S Q L S A P H E D A R L T P E E L E R	49

Human	A S L L Q I L P E M L G - A E R G - D I L R K A D S S T N I F N P R G N L R K F Q D F S G Q D P	96
Frog	T R L L R N L P M F V D K A A V - E A E R D A E D I F S K E G F G L D A Y N - M D K E L F F Q D F S G Q D P	96
Carp α	A V S D L N D L L Q R A A V A G Y S - P L L S R E N I K V P P G Q I P K E A L R E L L L E K P Y -	96
Carp γ	S V S D L N E H L Q R A A V A G Y S - P L F S Q E N I K V P P G Q I P K E A L R E L L L E K P Y -	96

Human IN I L L 8 H L L A R I W K P Y K K R E T - - P D C F W K Y C V 124

Frog I S L L 8 R L Q S K D R R K Q F F R A G N L S E C F W K Y C V 127

Carp α R L I P P S G L W G S R R R Q Q F F R G G - G A D C F W K Y C V 126

Carp γ R L I P P R G L W G S R R R Q Q F F R G G - G A D C F W K Y C I 125

★ ★ ★ ★ ★ UROTENSIN · II

FIG. 1



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CCAAGAAGGAAGCCGTCTATCTTGTGGCCATC

ATG TAT AAG CTG GCC TCC TGC TGT TTG CTT TTC ATA GGA TTC TTA
Met Tyr Lys Leu Ala Ser Cys Cys Leu Leu Phe Ile Gly Phe Leu

SIGNAL PEPTIDE

AAT CCT CTC TTA TCT CTT CCT CTC CTT GAC TCC AGG GAA ATA TCC
Asn Pro Leu Leu Ser Leu Pro Leu Leu Asp Ser Arg Glu Ile Ser

TTT CAA CTC TCA GCA CCT CAT GAA GAC GCG CGC TTA ACT CCG GAG
Phe Gln Leu Ser Ala Pro His Glu Asp Ala Arg Leu Thr Pro Glu

PRO-SEGMENT

GAG CTA GAA AGA GCT TCC CTT CTA CAG ATA CTG CCA GAG ATG CTG
Glu Leu Glu Arg Ala Ser Leu Leu Gln Ile Leu Pro Glu Met Leu

GGT GCA GAA AGA GGG GAT ATT CTC AGG AAA GCA GAC TCA AGT ACC
Gly Ala Glu Arg Gly Asp Ile Leu Arg Lys Ala Asp Ser Ser Thr

AAC ATT TTT AAC CCA AGA GGA AAT TTG AGA AAG TTT CAG GAT TTC
Asn Ile Phe Asn Pro Arg Gly Asn Leu Arg Lys Phe Gln Asp Phe

TCT GGA CAA GAT CCT AAC ATT TTA CTG AGT CAT CTT TTG GCC AGA
Ser Gly Gln Asp Pro Asn Ile Leu Leu Ser His Leu Leu Ala Arg

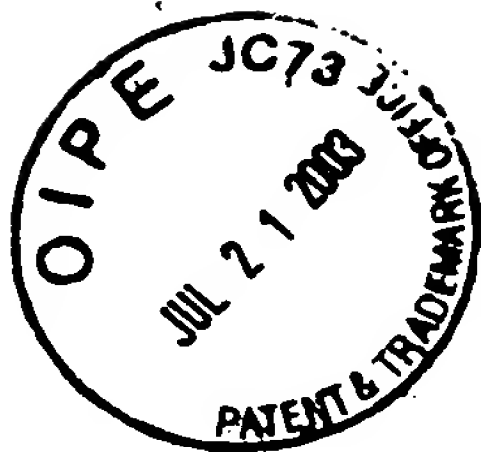
ATC TGG AAA CCA TAC AAG AAA CGT GAG ACT CCT GAT TGC TTC TGG
Ile Trp Lys Pro Tyr Lys Lys Arg Glu Thr Pro Asp Cys Phe Trp

UROTENSIN II

AAA TAC TGT GTC TGA
Lys Tyr Cys Val ***

AGTGAAATAAGCATCTGTTAGTCAGCTCAGAAACACCCATCTTAGAATATGAAAAATAACACA
ATGCTTGATTGAAAACAGTGTGGAGAAAACTAGGCAAACCTACACCCTGTTTCATTGTTACCT
GGAAAATAAATCCTCTAT

FIG. 2



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5' CGG AGC AGA CAC CCA GCC ACA CTT CTT CCC GTC GTC ATG GAC AGG GTG CCC TTC 54
Met Asp Arg Val Pro Phe
.....

TGC TGC CTG CTC TTC GTA GGA CTC CTG AAT CCA CTC CTG TCT TTT CCC GTC ACG 108
Cys Cys Leu Leu Phe Val Gly Leu Leu Asn Pro Leu Leu Ser Phe Pro Val Thr
.....

signal peptide

GAC ACT GGT GAA ATG TCT CTT CAG CTT CCA CTG CTT GAG GAA AAT GCT CTT CGG 162
Asp Thr Gly Glu Met Ser Leu Gln Leu Pro Val Leu Glu Glu Asn Ala Leu Arg
.....

GCT CTG GAG GAG CTG GAG AGG ACT GCC CTC CTG CAG ACG CTG CGC CAG ACC GTG 216
Ala Leu Glu Glu Leu Glu Arg Thr Ala Leu Leu Gln Thr Leu Arg Gln Thr Val
.....

pro-segment

GGC ACA GAA GCA GAG GGA AGC CTT GGC CAG GCA CAT CCC AGT GCC GAG ACT CCC 270
Gly Thr Glu Ala Glu Gly Ser Leu Gly Gln Ala Asp Pro Ser Ala Glu Thr Pro
.....

ACT CCA AGG GGA AGC TTG AGG AAG CCT CTC ACT GGG CAA GAT TCT AAC ACT GTA 324
Thr Pro Arg Gly Ser Leu Arg Lys Ala Leu Thr Gly Gln Asp Ser Asn Thr Val
.....

CTG AGC CGT CTT TTG GCG AGA ACC AGG AAA CAA CGT AAG CAA CAC GGG ACT GCC 378
Leu Ser Arg Leu Leu Ala Arg Thr Arg Lys Gln Arg Lys Gln His Gly Thr Ala
.....

CCA GAA TGC TTC TGG AAG TAC TGC ATT TCA AGA GAG ACG TCT CCT CAG AAC CAT 432
Pro Glu Cys Phe Trp Lys Tyr Cys Ile ***
.....

Urotensin II

CAC TTC AGG AAA CTA AAG AGC ACA TGC TTG AAG AAA AAT CCT GCC AAC AAC GCC 486
.....

CCG TTC TCC ACT ATG AGA AAT AAA CCC TCT ATG TTT CTC AAC T 3' 522

FIG. 3



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5' CCA GAG CAG ACG CCC AGA CGG ACT TCT CGC CGC ATC ATG GAC AGG GTG CCC TTC
Met Asp Arg Val Pro Phe

TGC TGC CTG CTC TTC ATA GGA CTT CTG AAT CCA CTG CTG TCC CTT CCC GTC ACC
Cys Cys Leu Leu Phe Ile Gly Leu Leu Asn Pro Leu Leu Ser Leu Pro Val Thr

signal peptide

GAC ACT GGT GAG AGG ACT CTT CAG CTT CCA CTC CTT GAG GAA GAC GCT CTT CGG
Asp Thr Gly Glu Arg Thr Leu Gln Leu Pro Val Leu Glu Glu Asp Ala Leu Arg

GCT CTG GAG GAG CTG GAG AGG ATG GCC CTC CTG CAG ACC CTG CGT CAG ACC ATG
Ala Leu Glu Glu Leu Glu Arg Met Ala Leu Leu Gln Thr Leu Arg Gln Thr Met

pro-segment

GGC ACG GAA GCA GGG GAG AGC CCT GGA GAA GCA GGT CCC AGC ACT GAG ACT CCC
Gly Thr Glu Ala Gly Glu Ser Pro Gly Glu Ala Gly Pro Ser Thr Glu Thr Pro

ACT CCA CGG GGA AGC ATG AGG AAG GCT TTC GCT GGG CAA AAT TCT AAC ACT GTA
Thr Pro Arg Gly Ser Met Arg Lys Ala Phe Ala Gly Gln Asn Ser Asn Thr Val

CTG AGT CGT CTC TTG GCA AGA ACC AGG AAA CAA CAT AAG CAA CAC GCG GCT GCC
Leu Ser Arg Leu Leu Ala Arg Thr Arg Lys Gln His Lys Gln His Gly Ala Ala

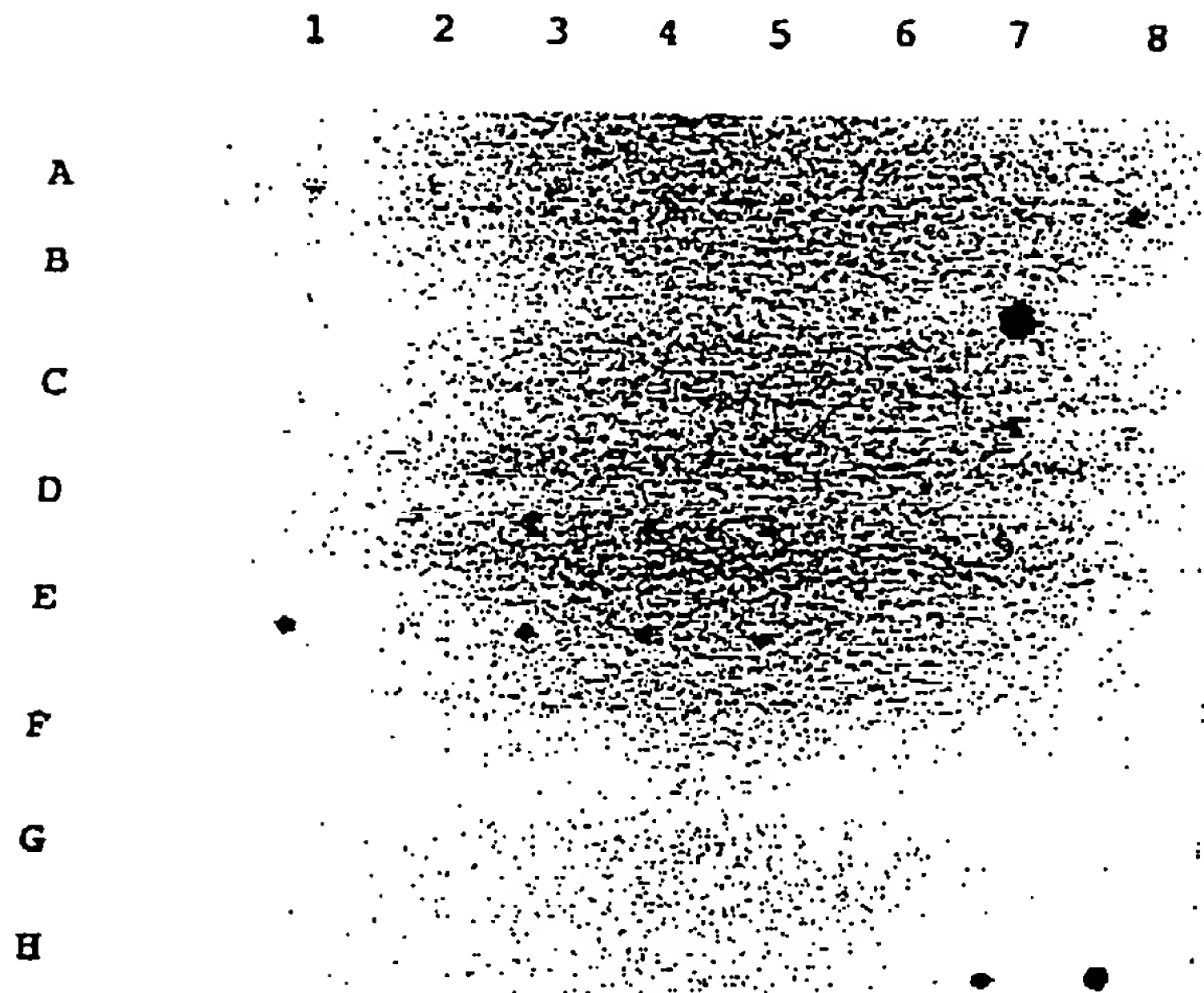
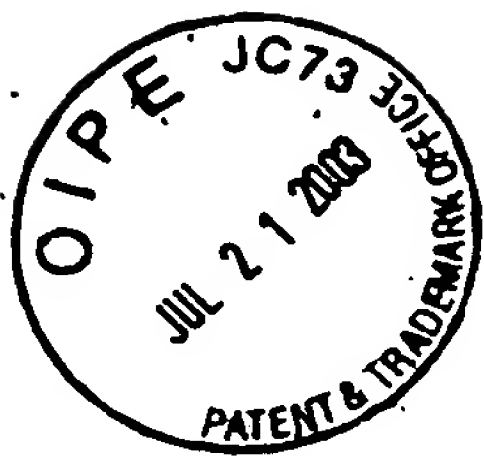
CCA GAG TGC TTC TGG AAA TAC TGC ATT TGA GGA GAC ACA AGC GCC CGT TGG TCT
Pro Glu Cys Phe Trp Lys Tyr Cys Ile ***

Urotensin II

CTC AGA ACC ATT ACA TTC AGG AAA CGG GCA GAG CAG ATG CTT CAA GCA AAA TCA

CGC TAA CGA CGC CTT GTT CTT CAT TAT GAG AAA TAA ATC CTC TAT GTT TCT CA 3'

FIG. 4



	1	2	3	4	5	6	7	8
A	whole brain	tonsil	caudate nucleus	cerebellum	cerebral cortex	frontal lobe	hippocampus	medulla oblongata
B	occipital lobe	putamen	substantia nigra	temporal lobe	thalamus	subthalamic nucleus	spinal cord	
C	heart	aorta	skeletal muscle	colon	bladder	uterus	prostate	stomach
D	testicles	ovaries	pancreas	hypophysis	adrenal gland	thyroid	salivary gland	mammary gland
E	kidney	liver	small intestine	spleen	thymus	peripheral leukocyte	lymph node	bone marrow
F	appendix	lung	trachea	placenta	-	-	-	-
G	fetal brain	fetal heart	fetal kidney	fetal liver	fetal spleen	fetal thymus	fetal lung	-
H	yeast total RNA 100 ng	yeast tRNA 100 ng	E. coli rRNA 100 ng	E. coli DNA 100 ng	poly r(A) 100 ng	human C,cl DNA	human DNA 100 ng	human DNA 500 ng

FIG. 5A

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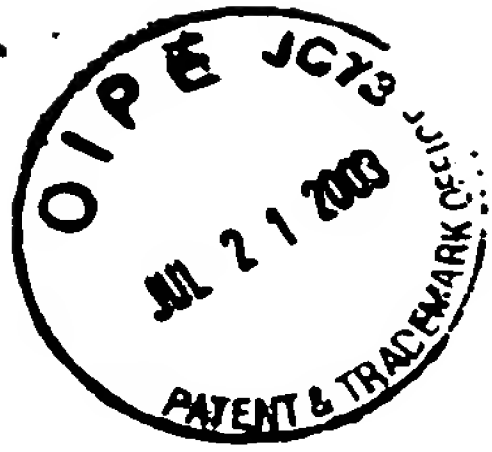


FIG. 5B

spinal
cord

725 pb →

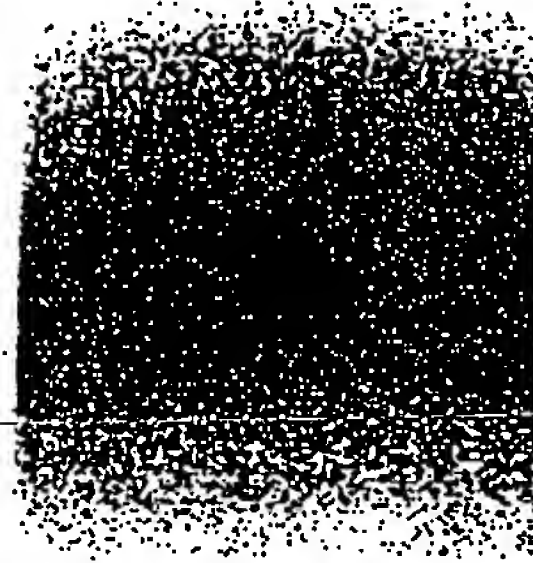


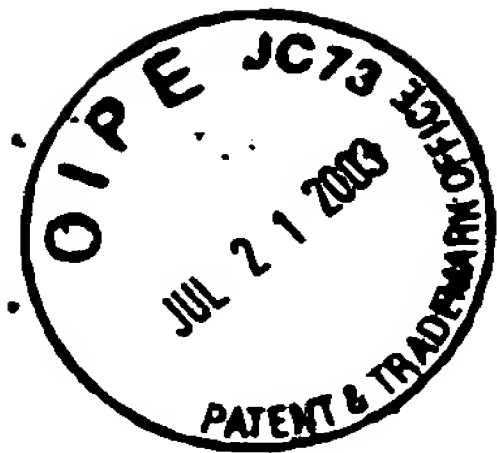
FIG. 5C



(1)



(2)



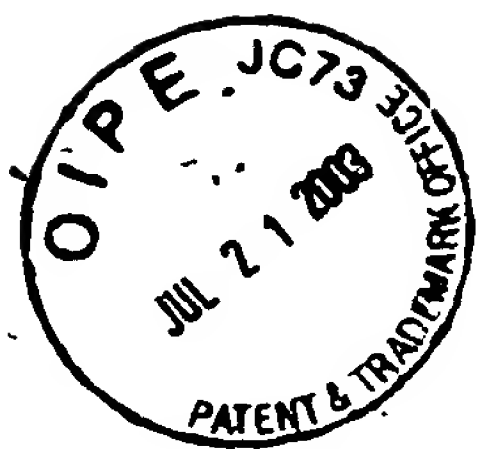
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REPLACEMENT SHEET

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D E . E . E . E E . E E E . . .
. S S S S S S
P L A S A T A T T A T T T . . .
T N . N G N G N N G . S S E E E
. G G G S S G G S G G G N N N
E A A G G G G G G A . . N N N

Human
Frog
Gudgeon
Trout
Sucker Fish A
Sucker Fish B
Carp α
Carp $\beta 1$
Carp $\beta 2$
Carp γ
Flounder
Sturgeon
Paddle-fish
Skate
Dogfish
Lamprey

FIG. 6



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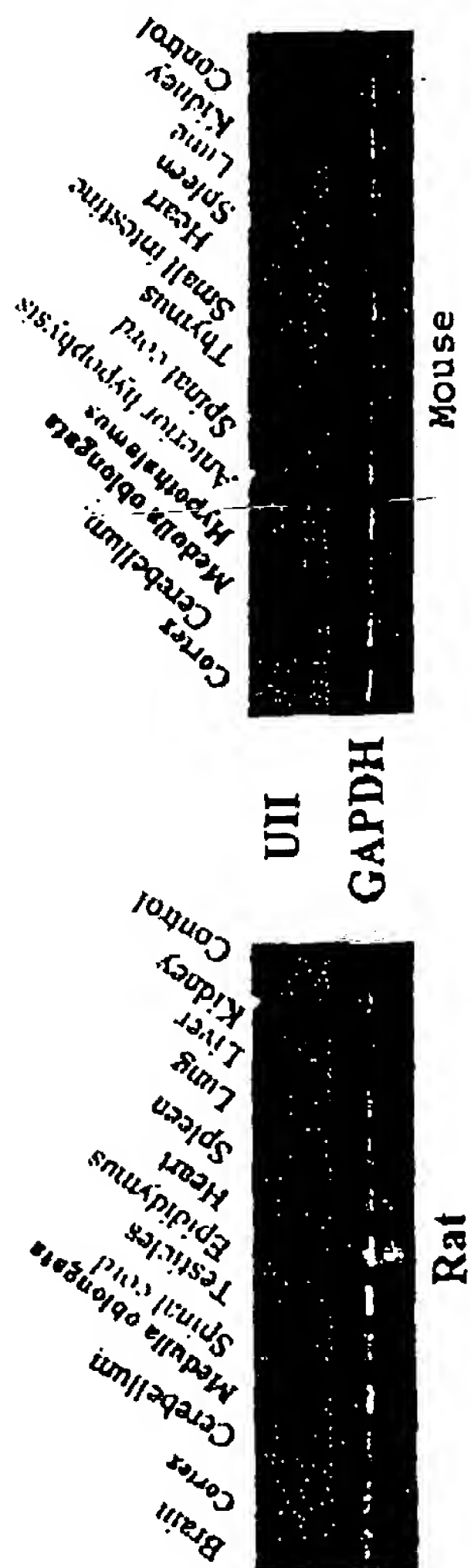


FIG. 7